

IN THE CLAIMS:

- 1 1. (Original) A method by which a router ensures the uniqueness of an identifier used to
2 identify the router in routing protocol messages (RPMs) originated by the router in a
3 network, comprising:
4 for each of a plurality of routing protocol messages (RPMs) received by the router,
5 determining whether an identifier ID_R in the received RPM is the same as an identifier ID_S
6 currently used by the router to identify itself in RPMs originated by the router;
7 comparing sequence information in an RPM most recently originated by the router
8 with sequence information in each of a plurality of the received RPMs for which the
9 identifier ID_R is determined to be the same as the identifier ID_S , the result of each
10 comparison indicating whether the received RPM appears to have been originated more
11 recently than the RPM most recently originated by the router;
12 determining whether those RPMs having an identifier ID_R that is the same as the
13 identifier ID_S and appearing to have been originated more recently than the RPM most
14 recently originated by the router are being received at a rate above a predetermined
15 threshold rate; and
16 upon determining that such RPMs are being received at a rate above the
17 predetermined threshold rate, selecting an identifier different from the identifier ID_S for
18 subsequent use in identifying the router in routing protocol messages originated by the
19 router.
- 1 2. (Original) A method according to claim 1, wherein the sequence information in each
2 RPM includes a sequence number, and wherein the sequence numbers in a sequence of
3 RPMs originated by the router change monotonically.
- 1 3. (Original) A method according to claim 2, wherein the sequence information in each
2 RPM further includes a checksum calculated from predetermined contents of the RPM.

1 4. (Original) A method according to claim 3, wherein each RPM further includes a
2 random number tending to differentiate the RPMs from each other, and wherein the random
3 number is included in the predetermined contents of the RPM from which the checksum is
4 calculated.

1 5. (Original) A method according to claim 3, wherein for each RPM the sequence number
2 forms a more-significant part of the sequence information and the checksum forms a less-
3 significant part of the sequence information.

1 6. (Original) A method according to claim 2, wherein the sequence numbers in the
2 sequence of RPMs originated by the router increase monotonically.

1 7. (Original) A method according to claim 1, wherein the RPMs are link state messages.

1 8. (Original) A router capable of ensuring the uniqueness of an identifier used to identify
2 the router in routing protocol messages (RPMs) originated by the router in a network, the
3 router being operative to:

4 determine, for each, of a plurality of routing protocol messages (RPMs) received by
5 the router, whether an identifier ID_R in the received RPM is the same as an identifier ID_S
6 currently used by the router to identify itself in RPMs originated by the router;

7 compare sequence information in an RPM most recently originated by the router
8 with sequence information in each of a plurality of the received RPMs for which the
9 identifier ID_R is determined to be the same as the identifier ID_S , the result of each
10 comparison indicating whether the received RPM appears to have been originated more
11 recently than the RPM most recently originated by the router;

12 determine whether those RPMs having an identifier ID_R that is the same as the
13 identifier ID_S and appearing to have been originated more recently than the RPM most
14 recently originated by the router are being received at a rate above a predetermined
15 threshold rate; and

16 upon determining that such RPMs are being received at a rate above the
17 predetermined threshold rate, select an identifier different from the identifier ID_S for

18 subsequent use in identifying the router in routing protocol messages originated by the
19 router.

1 9. (Original) A computer program product including a computer readable medium, the
2 computer readable medium having a routing program stored thereon, the routing program
3 comprising:

4 program code for determining, for each of a plurality of routing protocol messages (RPMs)
5 received by the router, whether an identifier ID_R in the received RPM is the same as an
6 identifier ID_S currently used by the router to identify itself in RPMs originated by the
7 router;

8 program code for comparing sequence information in an RPM most recently
9 originated by the router with sequence information in each of a plurality of the received
10 RPMs for which the identifier ID_R is determined to be the same as the identifier ID_S , the
11 result of each comparison indicating whether the received RPM appears to have been
12 originated more recently than the RPM most recently originated by the router;

13 program code for determining whether those RPMs having an identifier ID_R that is
14 the same as the identifier ID_S and appearing to have been originated more recently than the
15 RPM most recently originated by the router are being received at a rate above a
16 predetermined threshold rate; and

17 program code for selecting, upon determining that such RPMs are being received at a
18 rate above the predetermined threshold rate, an identifier different from the identifier ID_S for
19 subsequent use in identifying the router in routing protocol messages originated by the
20 router.

1 10. (Currently amended) A computer data signal embodied in a transmission medium
2 including a routing program for execution in a computer functioning as a router in a
3 network, the routing program comprising:

4 program code for determining, for each of a plurality of routing protocol messages
5 (RPMs) received by the router, whether an identifier ID_R in the received RPM is the same

6 as an identifier ID_S currently used by the router to identify itself in RPMs originated by the
7 router;

8 program code for comparing sequence information in an RPM most recently
9 originated by the router with sequence information in each of a plurality of the received
10 RPMs for which the identifier ID_R is determined to be the same as the identifier ID_S , the
11 result of each comparison indicating whether the received RPM appears to have been
12 originated more recently than the RPM most recently originated by the router;

13 program code for determining whether those RPMs having an identifier ID_R that is
14 the same as the identifier ID_S and appearing to have been originated more recently than the
15 RPM most recently originated by the router are being received at a rate above a
16 predetermined threshold rate; and

17 program code for selecting, upon determining that such RPMs are being received at
18 a rate above the predetermined threshold rate, an identifier different from the identifier ID_S
19 for subsequent use in identifying the router in routing protocol messages originated by the
20 router.

1 11. (Original) A router capable of ensuring the uniqueness of an identifier used to identify
2 the router in routing protocol messages (RPMs) originated by the router in a network,
3 comprising:

4 means for determining, for each of a plurality of routing protocol messages (RPMs)
5 received by the router, whether an identifier ID_R in the received RPM is the same as an
6 identifier ID_S currently used by the router to identify itself in RPMs originated by the
7 router;

8 means for comparing sequence information in an RPM most recently originated by
9 the router with sequence information in each of a plurality of the received RPMs for which
10 the identifier ID_R is determined to be the same as the identifier ID_S , the result of each
11 comparison indicating whether the received RPM appears to have been originated more
12 recently than the RPM most recently originated by the router;

13 means for determining whether those RPMs having an identifier ID_R that is the same
14 as the identifier ID_S and appearing to have been originated more recently than the RPM
15 most recently originated by the router are being received at a rate above a predetermined
16 threshold rate; and

17 means for selecting, upon determining that such RPMs are being received at a rate
18 above the predetermined threshold rate, an identifier different from the identifier ID_S for
19 subsequent use in identifying the router in routing protocol messages originated by the
20 router.